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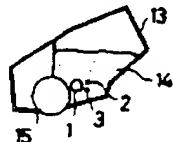
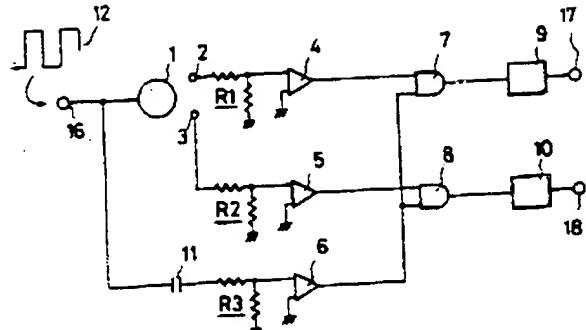
APPLICATION DATE : 31-01-90
 APPLICATION NUMBER : 02020876

APPLICANT : CANON INC;

INVENTOR : YAMADA KAZURO;

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TITLE : RESIDUAL TONER DETECTOR



ABSTRACT : PURPOSE: To accurately detect residual toner with high precision by providing plural antennas whose height is changed with respect to a developing sleeve and which is oppositely arranged and detecting the residual toner through a change in the electrostatic capacity of the antenna.

CONSTITUTION: First and second antennas 2 and 3 acting as the other electrodes are arranged to face oppositely the developing sleeve 1 in such a manner that their height are changed, and the electrostatic capacity is given between the sleeve 1 and antennas 2 and 3. A reference signal 12 supplied to an input terminal 16 passes through a HPF composed of the electrostatic capacity and respective resistors R1 and R2, and is supplied to first and second AND circuits 7 and 8 via first and second zero-cross comparators 4 and 5. The changes in the electrostatic capacities of the antennas 2 and 3 are converted into phases with an output signal modulated by a positional difference from a signal 12, so that the output of the circuits 7 and 8 detect the residual toner. Thus, the residual toner is consecutively and almost linearly detected over a wide area.

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